

REMARKS/ARGUMENTS

Claims 39, 45-49, 52-54, 57-62, 64-75, and 77-78 are pending in this application, with claims 39 and 67 being the only independent claims. Claims 39, 45-46, 48-49, 54-55, 62, and 66-67 are amended and claims 77-78 are added. Claims 40-44, 50-51, 56, 63, 76 are canceled without prejudice or disclaimer. Reconsideration of the above-identified application, as herein amended and in view of the following remarks, is respectfully requested.

Claim Objections

Claims 39 and 54 are objected to as containing minor infelicities. The limitation of claim 39 objected to by the Examiner has been canceled from claim 39 and is now recited in new claim 77. The limitation is corrected as suggested by the Examiner.

Claim 54 is amended to depend from new claim 77.

Accordingly, the objections to the claims should now be withdrawn.

Claim Rejections under 35 U.S.C. §103

Claims 39-42, 45-46, 48-51, 65 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,640,957 (Kaminski).

Claim 47 is rejected under 35 U.S.C. §103(a) as being unpatentable over Kaminski as applied to claim 46 and further in view of U.S. Patent No. 6,529,543 (Anderson).

Claims 52-54 are rejected under 35 U.S.C. §103(a) as being unpatentable over Kaminski as applied to claim 39 and further in view of U.S. Patent No. 6,348,694 (Gersthelyn).

Claims 55-59 and 64 are rejected 35 U.S.C. §103(a) as being unpatentable over Kaminski in view of Gershteyn as applied to claim 54 and further in view of U.S. Patent No. 5,807,261 (Benaron).

Claim 60 is rejected under 35 U.S.C. §103(a) as being unpatentable over Kaminski in view of Gershteyn as applied to claim 54 and further in view of U.S. Patent No. 6,736,832 (Lenderink).

Claim 61 is rejected under 35 U.S.C. §103(a) as being unpatentable over Kaminski in view of Gershteyn as applied to claim 54 and further in view of U.S. Publication No. 2002/0052562 (Lipman).

Claims 62-63 are rejected under 35 U.S.C. §103(a) as being unpatentable over Kaminski as applied to claim 39 and further in view of U.S. Patent No. 5,107,123 (Shi).

Claim 66 is rejected under 35 U.S.C. §103(a) as being unpatentable over Kaminski as applied to claim 65 and further in view of U.S. Patent No. 4,882,598 (Wulf).

Claims 67-68, 70-74 and 76 are rejected under 35 U.S.C. §103(a) as being unpatentable over Kaminski in view of VandeBerg.

Claim 69 is rejected under 35 U.S.C. §103(a) as being unpatentable over Kaminski in view of VandeBerg as applied to claim 67 and further in view of U.S. Patent No. 4,843,279 (Rattray),

Claim 75 is rejected under 35 U.S.C. §103(a) as being unpatentable over Kaminski in view of VandeBerg as applied to claim 67 and further in view of U.S. Publication No. 2002/0183811.

Independent claim 39

Independent claim 39 is amended to incorporate the limitations of claim 42 and now recites “a UV emitter for emitting UV radiation penetrating into the skin of a test subject at a wavelength between 345 nm and 355 nm” and “an evaluation unit coupled to the UV emitter and the UV sensor for determining UV radiation absorption of the skin based on the UV radiation emitted by the UV emitter and penetrating into the skin of a test subject at a wavelength between 345 nm and 355 nm and the diffusely reflected UV radiation received by the UV sensor.”

Accordingly, independent claim 39 now requires that the evaluation unit determines UV radiation absorption based on the emitted UV radiation at a wavelength between 345 nm and 355 nm and the diffusely reflected UV radiation received by the UV sensor. The criticality of this wavelength is discussed in the application as originally filed at paragraphs [0028]-[0029] with reference to Fig. 1. At this wavelength the absorption coefficient and scattering coefficient are approximately equal. Thus UV-sensitive skin can be distinguished from less sensitive skin by determining whether scattering predominates or absorption predominates.

Kaminski fails to disclose the above limitations because Kaminski performs a different analysis that does not include the diffusely reflected radiation when determining absorption of the skin. In contrast, the Examiner-cited portion of Kaminski discloses in col. 3, lines 66 - col. 4, line 18 that the diffusely reflected light is used to determine the effectiveness of the sunscreen. However, when receiving light from the skin, Kaminski discloses that radiation reflected and diffused from the surface of the skin is not received (see col. 4, lines 34-38 of Kaminski). Thus Kaminski fails to disclose “an evaluation unit coupled to the UV emitter and the UV sensor for determining UV radiation absorption of the skin based on the UV radiation emitted by the UV emitter and penetrating into the skin of a test subject at a wavelength between 345 nm and 355 nm and the diffusely reflected UV radiation received by the UV sensor”, as expressly recited in independent claim 39.

Independent claim 67

Independent claim 67 recites “determining absorption of erythemally-effective UV radiation in a layer of the skin that has developed hyperkeratosis based on a degree of diffuse reflection of UV radiation in the layer of skin, the depth of the determination being adjusted for a determination in a specific skin layer, wherein the determining is performed using one of direct

UV irradiation or fluorescence photometry" and "assigning a UV radiation threshold value based on the determination of UV radiation absorption of the skin."

The combination of Kaminski and VandeBerg fails to disclose the above limitations. Kaminski discloses a method for determining the effectiveness and protection rating of a sunscreen. To do this, Kaminski discloses that physiological data is gathered by scanning both a treated area and an untreated area of the skin of a subject to determine sun protection factors (see col. 4, lines 58-65 of Kaminski). This determination has nothing to do with determining a threshold value of UV radiation of a subject. Rather, Kaminski merely determines how effective a sunscreen is, i.e., to determine an SPF or sun protection factor for a sunscreen (see col. 5, lines 2-6 of Kaminski). Thus Kaminski fails to disclose "assigning a UV radiation threshold value based on the determination of UV radiation absorption of the skin", as expressly recited in independent claim 67.

VandeBerg fails to teach or suggest that which Kaminski lacks. VandeBerg discloses an analysis of ultraviolet radiation-induced skin hyperplasia and neoplasia. According to VandeBerg subjects (laboratory marsupials) were repeatedly exposed to UV radiation and the skin was visually evaluated for lesions. Accordingly, VandeBerg fails to disclose anything regarding UV radiation thresholds based on determination of UV absorption.

Therefore, the combination of Kaminski and VandeBerg fails to teach or suggest "assigning a UV radiation threshold value based on the determination of UV radiation absorption of the skin", as expressly recited in independent claim 67.

In view of the above amendments and remarks, the rejection of independent claim 67 under 35 U.S.C. §103 should now be withdrawn.

Dependent Claims

Dependent claims 45-49, 52-54, 57-62, 64-66, 68-75, and 77-78 are allowable for the same reasons as claims 39 and 67, as well as for the additional recitations contained therein.

Claim 49 recites “a processor unit coupled to the evaluation unit and operable to compute a mean value of a plurality of determinations of UV radiation absorption of the skin, wherein the processor unit is operable to assign a threshold UV radiation dose to a single determination of UV radiation absorption of the skin or the mean value of a plurality of determinations of UV radiation absorption of the skin.”

Kaminski fails to disclose the above limitations. As stated above, Kaminski discloses determining a sun protection factor for a sunscreen and does not teach or suggest how to determine a threshold UV radiation dose for a subject based on UV radiation absorption.

Accordingly, dependent claim 49 is allowable for at least these additional reasons.

Conclusion

The application is now deemed to be in immediate condition for allowance, and early notice to that effect is solicited.

Should the Examiner have any comments, questions, suggestions, or objections, the Examiner is respectfully requested to telephone the undersigned in order to resolve any outstanding issues.

It is believed that no additional fees or charges are required at this time in connection with the present application. However, if any additional fees or charges are required at this time, they may be charged to our Patent and Trademark Office Deposit Account No. 03-2412.

Respectfully submitted,
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